**Amendments to the Claims:**

This listing of claims will replace all prior versions, and listings, of claims in the application:

**Listing of Claims:**

Claims 1-20 (Cancelled)

21. (Cancelled)

22. (Currently Amended) The method of claim [[21]] 24, wherein the comparing step comprises a pair-wise comparison of like sample values from each of the resampled monitored waveform and the reference waveform.

23. (Currently Amended) The method of claim [[21]] 24, wherein the comparing step comprises comparing the resampled monitored waveform to the reference waveform using a sequential probability ratio test.

24. (Currently Amended) The method of claim 21, A method for monitoring the operating condition of a system characterized by a succession of waveforms, comprising the steps of:
       obtaining a reference waveform having a reference sample count;
       obtaining a monitored waveform from the system;
       resampling the monitored waveform with a digital fractional resampling filter such that the sample count of the monitored waveform matches the reference sample count of the reference waveform; and
       comparing the resampled monitored waveform to the reference waveform to determine the operating condition of the system, wherein the comparing step comprises:
              obtaining variance information for each sample in the reference waveform;

-3-

differencing the reference waveform and the resampled monitored waveform to produce a residual waveform; and

performing a sequential probability ratio test on a sequence of samples in said residual waveform using the variance information.

25.     (Currently Amended) The method of claim [[21]] 24, further comprising the step of aligning the resampled monitored waveform with the reference waveform.

26.     (Currently Amended) ~~The method of claim 25,~~ A method for monitoring the operating condition of a system characterized by a succession of waveforms, comprising the steps of:

obtaining a reference waveform having a reference sample count;

obtaining a monitored waveform from the system;

resampling the monitored waveform with a digital fractional resampling filter such that the sample count of the monitored waveform matches the reference sample count of the reference waveform;

aligning the resampled monitored waveform with the reference waveform; and

comparing the resampled monitored waveform to the reference waveform to determine the operating condition of the system,

wherein the aligning step includes the use of a bounded angle ratio test.

27.     (Currently Amended) ~~The method of claim 21,~~ A method for monitoring the operating condition of a system characterized by a succession of waveforms, comprising the steps of:

obtaining a reference waveform having a reference sample count;

obtaining a monitored waveform from the system;

resampling the monitored waveform with a digital fractional resampling filter such that the sample count of the monitored waveform matches the reference sample count of the reference waveform; and

comparing the resampled monitored waveform to the reference waveform to determine the operating condition of the system,

wherein the system comprises a biological heart.

28.    (Currently Amended) The method of claim [[21]] 24, wherein the system comprises an industrial device.

29.    (Cancelled)

30.    (Cancelled)

31.    (Currently Amended) The method of claim 30 A method for monitoring the operating condition of a system characterized by a succession of signals, comprising the steps of:

using an automated system to define a reference signal having a reference sample count;

using an automated system to obtain a monitored signal from the system;

using an automated system to resample the monitored signal with a digital fractional resampling filter such that the sample count of the monitored signal matches the reference sample count of the reference signal; and

using an automated system to compare the resampled monitored signal to the reference signal to determine the operating condition of the system,

wherein the comparing step comprises using an automated system to compare the resampled monitored signal to the reference signal using a sequential probability ratio test, and wherein the comparing step further comprises:

determining variance information for each sample in said reference signal;

using an automated system to difference the reference signal and the resampled monitored signal to produce a residual signal; and

performing a sequential probability ratio test on a sequence of samples in the residual signal using the variance information.

32.     (Cancelled)

33.     (Currently Amended) The computer program product according to claim [[32]] 37, wherein the comparing means performs a pair-wise comparison of like sample values from each of the resampled monitored waveform and the reference waveform.

34.     (Currently Amended) The computer program product according to claim [[32]] 37, wherein the comparing means compares the resampled monitored waveform to the reference waveform using a sequential probability ratio test.

35.     (Currently Amended) The computer program product according to claim 34 A computer system for monitoring the operating condition of a system characterized by a succession of waveforms, comprising:

        computer readable program code means for storing and retrieving a reference waveform having a reference sample count;

        computer readable program code means for receiving a monitored waveform from the system;

        computer readable program code means for resampling the monitored waveform with a digital fractional resampling filter so that its sample count matches the reference sample count of the reference waveform; and

        computer readable program code means for comparing the resampled monitored waveform to the reference waveform to determine the operating condition of the system,

        wherein the comparing means compares the resampled monitored waveform to the reference waveform using a sequential probability ratio test, and wherein the comparing means receives variance information for each sample in said reference waveform, differences the reference waveform and the resampled monitored waveform to produce a residual waveform, and performs a sequential probability ratio test on a sequence of samples in said residual waveform using the variance information.

36.     (Currently Amended) The computer program product according to claim [[32]] 35, further comprising computer readable program code means for aligning the resampled monitored waveform with the reference waveform.

37.     (Currently Amended) ~~The computer program product according to claim 36~~ A computer system for monitoring the operating condition of a system characterized by a succession of waveforms, comprising:

computer readable program code means for storing and retrieving a reference waveform having a reference sample count;

computer readable program code means for receiving a monitored waveform from the system;

computer readable program code means for resampling the monitored waveform with a digital fractional resampling filter so that its sample count matches the reference sample count of the reference waveform;

computer readable program code means for aligning the resampled monitored waveform with the reference waveform; and

computer readable program code means for comparing the resampled monitored waveform to the reference waveform to determine the operating condition of the system, wherein the aligning means uses a bounded angle ratio test.

38.     (Currently Amended) The computer program product according to claim [[32]] 37, wherein the system comprises a biological system.

39.     (Currently Amended) The computer program product according to claim [[32]] 37, wherein the system comprises an industrial device.